

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: MAKOTO YAMADA ET AL
Group Art Unit: 1714
Serial No.: 09/409,338
Examiner: CALLIE SHOSHO
Filed: September 30, 1999
For: JET PRINTING INK AND INK-JET
RECORDING METHOD



DECLARATION PURSUANT TO RULE 132

Honorable Commissioner of Patents and Trademarks
Washington, D.C.

I, Makoto Yamada, one of the above-named applicants,
declare and state that:

I hereby submit experimental results obtained by ex-
periments, which were recently performed by me.

In the following experiments, I prepared jet-printing
aqueous inks in the same manner as in Examples 1 to 12
given in our specification on pages 37 to 38, except that
glycerol was not used. The prepared aqueous inks were
evaluated in the same manner as in Examples 1 to 12. The
results are set forth in Table 2.

Comparison Example 6

The following components were mixed and stirred for
one hour, while the mixture was heated at 30°C to 40°C.
The resultant liquid was filtered under pressure through a
micro-filter (average pore size: 0.8 μ m, diameter: 47 mm)
to prepare a jet-printing aqueous ink.

The prepared aqueous ink was evaluated in the same
manner as described in our specification on page 36, line
17 to page 37, line 4. The results are set forth in Table
2.

Ink Composition

azomethine dye (III-5) given in our specification on page 15	4 weight parts
basic polymer (A-4) given in our specification on page 9 [molecular weight (Mw): 15,000]	10 weight parts
diethylene glycol	9 weight parts
tetraethylene glycol monobutyl ether	9 weight parts
diethanolamine	1 weight part
water	70 weight parts

Comparison Examples 7 to 9

The procedure for preparing an aqueous ink described in Comparison Example 6 was repeated using the azomethine dye (IV-2) [for Comparison Example 7] given in our specification on page 18, azo dye (V-6) [for Comparison Example 8] given in our specification on page 23, or azo dye (VI-10) [for Comparison Example 9] given in our specification on page 28 in place of the azomethine dye (III-5) in the same amount, to prepare a jet-printing ink.

The prepared aqueous ink was evaluated in the same manner as described in our specification on page 36, line 17 to page 37, line 4. The results are set forth in Table 2.

Comparison Examples 10 to 13

The procedure for preparing an aqueous ink described in Comparison Examples 6 to 9 was repeated using the basic polymer (A-23) given in our specification on page 10 in place of the basic polymer (A-4) in the same amount, to prepare a jet-printing ink.

The prepared aqueous ink was evaluated in the same manner as described in our specification on page 36, line

17 to page 37, line 4. The results are set forth in Table 2.

Comparison Examples 14 to 17

The procedure for preparing an aqueous ink described in Comparison Examples 6 to 9 was repeated using the basic polymer (A-24) given in our specification on page 10 in place of the basic polymer (A-4) in the same amount, to prepare a jet-printing ink.

The prepared aqueous ink was evaluated in the same manner as described in our specification on page 36, line 17 to page 37, line 4. The results are set forth in Table 2.

In Table 2, the results of Comparison Examples 1 to 5 and Examples 1 to 12 shown in Table 1 of our specification (on page 39) are set forth again for reference.

TABLE 2

Ink	Poly- mer	Dye	Glyc erol	Vis. (cp)	<u>Photo paper</u>		<u>Genuine paper</u>	
					Hue	Res.	Hue	Res.
Comparison Example								
1	none	VIII	7	5	B	A-B	B-C	B-C
2	none	III-5	7	5	A	A-B	B	C
3	none	IV-2	7	5	A-B	A-B	B	C
4	none	V-6	7	5	A	A-B	B	C
5	none	VI-10	7	5	A-B	A-B	C	C
Example								
1	A-4	III-5	3	5	A	A	A	A-B
2	A-4	IV-2	3	5	A-B	A	A-B	A-B
3	A-4	V-6	3	5	A	A	A	A-B
4	A-4	VI-10	3	5	A-B	A	A-B	A-B
5	A-23	III-5	5	6	A	A	A	A-B
6	A-23	IV-2	5	6	A-B	A	A-B	A-B
7	A-23	V-6	5	6	A	A	A	A-B
8	A-23	VI-10	5	6	A-B	A	A-B	A-B
9	A-24	III-5	2	6	A	A-B	A	B
10	A-24	IV-2	2	6	A-B	A-B	A-B	B
11	A-24	V-6	2	6	A	A-B	A	B
12	A-24	VI-10	2	6	A-B	A-B	A-B	B
Comparison Example								
6	A-4	III-5	none	4	A	A	A-B	A-B
7	A-4	IV-2	none	4	A-B	A	B	A-B
8	A-4	V-6	none	4	A	A	A-B	A-B
9	A-4	VI-10	none	4	A-B	A	B	A-B
10	A-23	III-5	none	5	A	A	A-B	A-B
11	A-23	IV-2	none	5	A-B	A	B	A-B
12	A-23	V-6	none	5	A	A	A-B	A-B
13	A-23	VI-10	none	5	A-B	A	B	A-B
14	A-24	III-5	none	5	A	A-B	A-B	B
15	A-24	IV-2	none	5	A-B	A-B	B	B
16	A-24	V-6	none	5	A	A-B	A-B	B
17	A-24	VI-10	none	5	A-B	A-B	B	B

As is clear from the results given in Table 2, the jet-printing ink of the invention gives an image of good hue and high resistance to light in various receiving sheets. Further, the images formed of the inks of Examples 1 to 12 showed less blotting, and had good resistance in water.

As is also clear from the results given in Table 2, if the glycerol is not used, quality of hue in the image depends on the receiving sheet (Comparison Examples 6 to 12).

The undersigned declarant declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date May 8, 2001

Makoto Yamada

MAKOTO YAMADA